



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Dinesh R. Patel

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Group Art Unit: 3672

Serial No.: 10/710,753

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Examiner: Harcourt, Brad

Filed: July 30, 2004

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Atty Docket: 68.0505

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For: Cross Flow Prevention System and Valve

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Assistant Commissioner
for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING
37 C.F.R. 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below:

September 17, 2008

Date

Robert A. Van Someren

Sir:

REPLY BRIEF PURSUANT TO 37 C.F.R. §§ 41.41

This Reply Brief is being filed in response to the Examiner's Answer dated July 18, 2008.

1. REAL PARTY IN INTEREST

The real party in interest is Schlumberger Technology Corporation, the Assignee of the above-referenced application by virtue of the Assignment recorded at reel 014940, frame 0009.

2. RELATED APPEALS AND INTERFERENCES

An Appeal Brief was filed for the present case on August 14, 2007, resulting in a final Office Action that was mailed on December 18, 2007. The present Appeal Brief is filed in response to the December 18, 2007 Office Action and in furtherance of the second Notice of Appeal mailed on February 15, 2008. Otherwise, Appellants are unaware of any additional appeals or interferences related to this Appeal. The undersigned is Appellant's legal

representative in this Appeal. Schlumberger Technology Corporation, the Assignee of the above-referenced application as evidenced by the documents listed above, will be directly affected by the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1-23 stand finally rejected by the Examiner as noted in the Office Action dated December 18, 2007. The rejection of claims 1-23 is appealed.

4. STATUS OF AMENDMENTS

The December 8, 2006 Amendment, submitted prior to the Examiner's Final Rejection mailed February 20, 2007, was entered by the Examiner.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

a.) Independent Claim 1

Independent claim 1 is directed to a system for preventing cross flow of fluid between formations 14, 16 that intersect a wellbore 10. (See page 2, lines 22-24, paragraph 0010). The flow of fluid from formation 14 up through wellbore 10 (or the flow of fluid down through wellbore 10 into formation 14) is controlled by a flow valve 20. The flow valve 20 can be hydraulically actuated via a hydraulic control line 21. (See page 3, lines 6-12, paragraph 0011). A cross-flow prevention valve 50 is used to selectively prevent undesired flow between formations 14 and 16. (See page 4, lines 21-23, paragraph 0016). The cross-flow prevention valve 50 is actuated with the same hydraulic control line 21 used to control flow valve 20. (See page 4, lines 24-26, paragraph 0016).

b.) Independent Claim 14

Independent claim 14 is directed to a system for preventing cross flow of fluid between formations 14, 16 that intersect a wellbore 10. (See page 2, lines 22-24, paragraph 0010). The

system comprises a first multi-position flow valve 20 used to control the flow of fluid from formation 14 up through wellbore 10 (or the flow of fluid down through wellbore 10 into formation 14). The system also comprises a second multi-position flow valve 22 used to control the flow of fluid from a next adjacent formation 16 up through wellbore 10 (or the flow of fluid down through wellbore 10 into formation 16). (See page 3, lines 6-12, paragraph 0011). A cross-flow prevention valve 50 is disposed between the first multi-position flow valve 20 and the second multi-position flow valve 22 to selectively prevent undesired flow between formations 14 and 16. (See page 4, lines 21-23, paragraph 0016, and Figure 1).

c.) Independent Claim 19

Independent claim 19 is directed to a method for preventing cross flow of fluid between formations 14, 16 that intersect a wellbore 10. (See page 2, lines 22-24, paragraph 0010). The method comprises controlling fluid flow from formation 14 up through wellbore 10 (or down through wellbore 10 into formation 14) by a flow valve 20. (See page 3, line 6-8, paragraph 0011). The method further comprises preventing flow between formations 14 and 16 with a cross-flow prevention valve 50. (See page 4, lines 21-23, paragraph 0016). The method also comprises actuating the cross-flow prevention valve 50 and the flow valve 20 with a single hydraulic control line 21. (See page 4, lines 24-26, paragraph 0016).

6. **GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

- a.) Whether claims 1-5, 7 and 19-23 are unpatentable under 35 U.S.C. § 102(b) as anticipated by the Williamson, Jr. et al. reference, U.S. Patent No: 6,668,936.
- b.) Whether claim 14 is unpatentable under 35 U.S.C. § 102(b) as anticipated by the Ringgenberg, Jr. et al. reference, U.S. Publication No: 2002/0023746.

c.) Whether claims 6 and 8-13 are unpatentable under 35 U.S.C. § 103(a) as obvious over the Williamson Jr. et al. reference in view of the Murray et al. reference, U.S. Patent No: 5,862,865.

d.) Whether claims 15-18 are unpatentable under 35 U.S.C. § 103(a) as obvious over the Ringgenberg et al. reference in view of the Williamson Jr. et al. and the Murray et al. reference.

7. **ARGUMENT IN RESPONSE TO EXAMINER'S ANSWER**

- a.) Rejection of claims 1-5, 7 and 19-23 as unpatentable under 35 U.S.C. § 102(b) as anticipated by the Williamson, Jr. et al. reference, U.S. Patent No: 6,668,936.**

- Claims 1-5, 7 and 19-23

Independent claims 1, 19 and dependent claims 2-5, 7, 20-23 were improperly rejected as anticipated by the Williamson Jr. et al. reference. The reference fails to disclose elements of the subject claims.

As discussed in the Appeal Brief, dated April 14, 2008, the reference relied on by the Examiner fails to disclose each and every element recited in the presently pending claims. In addition to the arguments provided in the Appeal Brief, the present Reply Brief addresses issues raised by the Examiner in the Examiner's Answer.

In the Response to Argument section of the Examiner's Answer, the Williamson, Jr. et al. reference is described as disclosing "a first valve 18 associated with formation 30 and a number of other valves 12, 14 and 16 that selectively prevent cross flow between formation 30 and formations 24, 26 and 28, respectively." (See Examiner's Answer, page 7). Appellant strongly disagrees with this assertion. The well tool assemblies 12, 14, 16 and 18 are positioned in corresponding formations to individually control fluid flow between a wellbore 22 and the specific formation associated with the individual well tool assembly. As described in the BACKGROUND section of the present application, this is a conventional approach to provide independent flow control along a tubing. However, as further described in the BACKGROUND section such valves can be left open after the well is shut-in and crossflow between formations can quickly develop. As described, the problem is compounded when the valves take a substantial amount of time to be activated or cycled to the fully closed position. The Williamson,

Jr. et al. reference completely fails to disclose any type of cross-flow prevention valve to prevent this flow between formations, as recited in independent claims 1 and 19.

In the Response to Argument section of the Examiner's Answer, the Williamson, Jr. et al. reference is further described as disclosing that "the valves 12, 14, 16 and 18 are actuated by 'one or more control lines 36, or other types of flowpaths, extending to the tool assemblies 12, 14, 16, 18' (col. 3, lines 36-37)". Appellant also strongly disagrees with this assertion. The Williamson Jr. et al. reference fails to provide the alleged teaching, because the section quoted in the Examiner's Answer does not include a key portion of the language, namely that the control module 32 places "one or more of the control lines 34 in fluid communication with one or more lines 36". (See column 3, lines 36-37).

Appellant believes the language relied on by the Examiner describes the potential relationship between two sets of control lines, i.e. control lines 34 and control lines 36. The Williamson Jr. et al. language does not teach the use of a single hydraulic control line for actuating both a flow valve and a cross-flow prevention valve. As described previously in the Appeal Brief, the examples and teachings in the Williamson Jr., et al. reference describe multiple control lines for controlling multiple tool assemblies. Accordingly, the rejection should be withdrawn.

Claims 2-5, 7 and 20-23 ultimately depend from either independent claim 1 or independent claim 19. These dependent claims are patentable over the cited reference for the reasons provided above with respect to their corresponding independent claims as well as for the unique subject matter recited in each of the claims 2-5, 7 and 20-23.

b.) Rejection of claim 14 as unpatentable under 35 U.S.C. § 102(b) as anticipated by the Ringgenberg et al. reference, U.S. Publication No: 2002/0023746.

- Claim 14

Independent claim 14 was improperly rejected as anticipated by the Ringgenberg et al. reference. The reference fails to disclose elements of the subject claims.

As discussed in the Appeal Brief, dated April 14, 2008, the Ringgenberg et al. reference relied on by the Examiner fails to disclose each and every element recited in the presently pending claims. In addition to the arguments provided in the Appeal Brief, the present Reply Brief addresses issues raised by the Examiner in the Examiner's Answer.

In the Response to Argument section of the Examiner's Answer, the Ringgenberg et al. reference is described as disclosing a valve 104 that "does in fact control flow out of the formation". Additionally, the valve 104 is described as "a multi-position valve as it has open and closed positions". (See Examiner's Answer, page 7). However, Appellant strongly disagrees with these assertions and the overall characterization of the Ringgenberg et al. reference.

First, the Ringgenberg et al. reference describes an entirely different type of system, i.e. a formation test assembly 20, rather than the presently claimed system for preventing cross-flow between at least two formations intersecting a wellbore. Additionally, the valve 104 relied on in the Examiner's Answer simply is not a multi-position flow valve for "controlling the flow from" a formation as recited in independent claim 14. In the Ringgenberg et al. reference, valve 104 is a check valve that blocks all flow from the formation at all times. The check valve is only used for disposing undesired fluid out into the formation. Accordingly, the check valve 104 cannot be construed as a multi-position flow valve controlling flow "from" the formation because it provides no control over the flow in that flow from the formation is not possible. With respect to flow from the formation, the check valve 104 effectively performs the same function as a solid pipe and thus cannot be construed as a multi-position flow valve controlling the flow from the formation.

Accordingly, the Ringgenberg et al. reference fails to disclose or suggest the general configuration of a "first multi-position flow valve" combined with a "second multi-position flow valve" and a "cross-flow prevention valve" as described in the previously filed Appeal Brief.

Furthermore, the Ringgenberg et al. reference completely fails to disclose or suggest a first and a second "multi-position flow valve controlling the flow from" a formation as further recited in independent claim 14. Reliance on the Ringgenberg et al. check valve 104 in formulating the rejection is not proper, and the rejection should be withdrawn.

c.) Rejection of claims 6 and 8-13 as unpatentable under 35 U.S.C. § 103(a) for being obvious over the Williamson Jr. et al. reference in view of the Murray et al. reference, U.S. Patent No: 5,862,865.

- Claims 6 and 8-18

Claims 6 and 8-13 were improperly rejected as obvious over the Williamson Jr. et al. reference in view of the Murray et al. reference. No *prima facie* case of obviousness has been established as discussed in the previously filed Appeal Brief.

d.) Rejection of claims 15-18 as unpatentable under 35 U.S.C. § 103(a) for being obvious over the Ringgenberg et al. reference in view of the Williamson Jr. et al. reference and the Murray et al. reference.

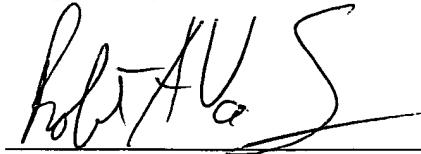
- Claims 15-18

Claims 15-18 were improperly rejected as obvious over the Ringgenberg et al. reference in view of the Williamson Jr. et al. reference and the Murray et al. reference. No *prima facie* case of obviousness has been established as discussed in the previously filed Appeal Brief.

In view of the above remarks, Applicant respectfully submits the Examiner has provided no supportable position or evidence that any of the claims 1-23 are anticipated under 35 U.S.C. § 102(b) or obvious under 35 U.S.C. § 103(a). Accordingly, Applicant

respectfully requests that the Board find claims 1-23 patentable over the art of record, withdraw all outstanding rejections, and allow claims 1-23.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert A. Van Someren".

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8. **CLAIMS APPENDIX**

1. A system for preventing cross-flow between at least two formations intersecting a wellbore, comprising:

 a flow valve controlling the flow from one of the formations;
 the flow valve actuated with a hydraulic control line;
 a cross-flow prevention valve selectively preventing flow between the formations;
and
 the cross-flow prevention valve actuated with the hydraulic control line.

2. The system of claim 1, wherein the flow valve is a multi-position valve.

3. The system of claim 2, wherein the cross-flow prevention valve is actuated and the flow valve is shifted from one to another position with each pressure cycle in the hydraulic control line.

4. The system of claim 1, further comprising another flow valve controlling the flow from another of the formations.

5. The system of claim 4, wherein the another flow valve is actuated with the hydraulic control line.

6. The system of claim 1, wherein the flow valve is a sleeve valve.

7. The system of claim 1, wherein the wellbore comprises an injection wellbore.

8. The system of claim 1, wherein the cross-flow prevention valve comprises a flapper valve.

9. The system of claim 8, wherein:

the flapper valve comprises a mandrel housing a movable actuator and a flapper; and

the actuator is movable between a first position that forces the flapper to an open arrangement and a second position that enables the flapper to move to a closed arrangement.

10. The system of claim 9, wherein the flapper valve comprises a biasing mechanism that selectively biases the actuator between the first and second positions.

11. The system of claim 10, wherein the biasing mechanism biases the actuator to the first position when fluid in the hydraulic control line is below a certain pressure.

12. The system of claim 11, wherein the fluid in the hydraulic control line is above a certain pressure that overcomes the biasing mechanism to move the actuator to the second position.

13. The system of claim 12, wherein the flapper includes an internal biasing that pivots the flapper to a closed position when the actuator is in the second position.

14. A system for preventing cross-flow between at least two formations intersecting a wellbore, comprising:

- a first multi-position flow valve controlling the flow from a first formation;
- a second multi-position flow valve controlling the flow from a next adjacent active formation; and

- a cross-flow prevention valve disposed between the first multi-position flow valve and the second multi-position flow valve to selectively prevent flow between the first formation and the next adjacent active formation.

15. The system of claim 14, wherein the cross-flow prevention valve comprises a flapper valve, and the flow valve and flapper valve are actuated with the same hydraulic control line.

16. The system of claim 15, wherein the flapper valve is actuated and the flow valve is shifted from one to another position with each pressure cycle in the hydraulic control line.

17. The system of claim 15, wherein the flapper valve is self-biased to a closed position when a hydraulic control line operatively connected to the flapper valve is pressurized below a certain pressure.

18. The system of claim 17, wherein the flapper valve is moved to an open position when the pressure in the hydraulic control line is above a certain pressure.

19. A method for preventing cross-flow between at least two formations intersecting a wellbore, comprising:

controlling the flow from one of the formations with a flow valve;
selectively preventing flow between the formations with a cross-flow prevention valve; and

actuating the cross-flow prevention valve and the flow valve with a single hydraulic control line.

20. The method of claim 19, wherein the flow valve comprises a multi-position valve and the controlling step comprises changing the positions of the multi-position flow valve.

21. The method of claim 20, wherein the actuating step comprises performing one pressure cycle in the single hydraulic control line.

22. The method of claim 20, wherein the cross-flow prevention valve comprises a flapper valve and the method further comprises biasing the flapper valve to a closed position when the single hydraulic control line is pressurized below a certain pressure.

23. The method of claim 22, further comprising moving the flapper valve to an open position when the single hydraulic control line is pressurized above a certain pressure.

9. **EVIDENCE APPENDIX**

Not Applicable

10. **RELATED PROCEEDINGS APPENDIX**

Not Applicable